Volunteer Lake Assessment Program Individual Lake Reports

COLD POND, ANDOVER, NH

MORPHOMETRIC DATA

Watershed Area (Ac.):	738	**Max. Depth (m):**	5.5	**Flushing Rate (yr^{-1}):**	10.7
Surface Area (Ac.):	15	**Mean Depth (m):**	2.4	**P Retention Coef:**	0.45
Shore Length (m):	1,000	**Volume (m^3):**	141,500	**Elevation (ft):**	1081

TROPHIC CLASSIFICATION

Year	Trophic class
1993	OLIGOTROPHIC

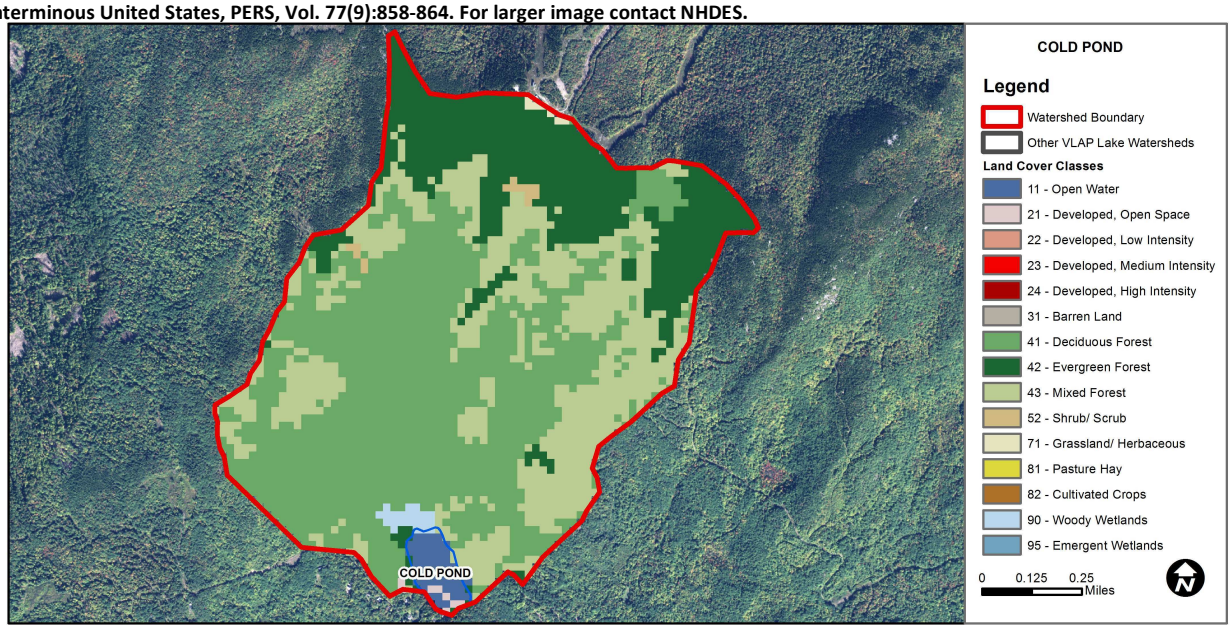
KNOWN EXOTIC SPECIES

The Waterbody Report Card tables are generated from the DRAFT 2014 305(b) report on the status of N.H. waters, and are based on data collected from 2004-2013. Detailed waterbody assessment and report card information can be found at www.des.nh.gov/organizations/divisions/water/wmb/swqa/index.htm

Designated Use	Parameter	Category	Comments
Aquatic Life	Phosphorus (Total)	Good	The calculated median is from 5 or more samples and is < indicator and > 1/2 indicator and the chlorophyll a indicator is okay.
	pH	Bad	>10%, with a minimum of 2, samples exceed criteria, with 1 or more by a large margin.
	Oxygen, Dissolved	Encouraging	There are < 10 samples with 0 exceedances of criteria. More data needed.
	Dissolved oxygen satura	Encouraging	There are < 10 samples with 0 exceedances of criteria. More data needed.
	Chlorophyll-a	Very Good	The calculated median is from 5 or more samples and is <= 1/2 indicator.
Primary Contact Recreation	Escherichia coli	Very Good	Where there are no geometric means, all bacteria samples are < 75% of the geometric mean. Where there are geometric means all single bacteria samples are < the SSMC and all geometric means are < geometric mean criteria.
	Chlorophyll-a	Very Good	There are a total of at least 10 samples with 0 exceedances of indicator.

WATERSHED LAND USE SUMMARY

Fry, J., Xian, G., Jin, S., Dewitz, J., Homer, C., Yang, L., Barnes, C., Herold, N., and Wickham, J., 2011. Completion of the 2006 National Land Cover Database for the Conterminous United States, PERS, Vol. 77(9):858-864. For larger image contact NHDES.



Land Cover Category	% Cover	Land Cover Category	% Cover	Land Cover Category	% Cover
Open Water	1.72	Barren Land	0	Grassland/Herbaceous	0.23
Developed-Open Space	0.26	Deciduous Forest	47.66	Pasture Hay	0
Developed-Low Intensity	0	Evergreen Forest	21.68	Cultivated Crops	0
Developed-Medium Intensity	0	Mixed Forest	27.02	Woody Wetlands	0.71
Developed-High Intensity	0	Shrub-Scrub	0.45	Emergent Wetlands	0

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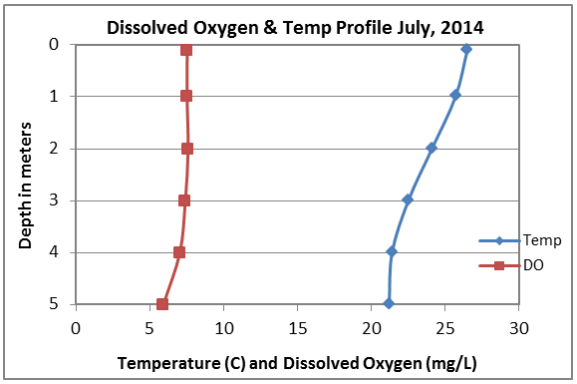
2014 Data Summary

Observations and Recommendations (*Refer to Table 1 and Historical Deep Spot Data Graphics)*

- **Chlorophyll-a:** Chlorophyll levels were low in July and much less than the state median. Historical trend analysis indicates relatively stable chlorophyll levels with high variability between years.
- **Conductivity/Chloride:** Deep spot, Inlet and Outlet conductivity levels were very low and much less than the state median. Historical trend analysis indicates significantly decreasing (improving) epilimnetic (upper water layer) conductivity since monitoring began and we hope to see this continue!
- **E. coli:** Beach E. coli levels were very low and much less than the state standard of 88 cts/100 mL for public beaches.
- **Total Phosphorus:** Epilimnetic and Inlet phosphorus levels were low and less than the state median. Hypolimetic (lower water layer) and Outlet phosphorus levels were average yet still slightly less than the state median. Historical trend analysis indicates relatively stable epilimnetic phosphorus levels with moderate variability between years.
- **Transparency:** Transparency was good and better (higher) than the state median. Transparency measured with the viewscope (VS) was one meter deeper and better than that measured without the viewscope (NVS). Historical trend analysis indicates stable transparency since monitoring began.
- **Turbidity:** Deep spot, Inlet and Outlet turbidity was slightly above average for the pond in 2014; however was still below average for most NH lakes.
- **pH:** Epilimnetic pH was within the desirable range of 6.5—8.0 units, however hypolimnetic, Inlet and Outlet pH was slightly less than desirable and could be potentially critical to aquatic life. Historical trend analysis indicates relatively stable epilimnetic pH with high variability between years.
- **Recommended Actions:** Increase monitoring frequency to three times per summer, typically June, July and August. This will allow better analysis of seasonal and historical trends to identify potential threats to water quality. The above average turbidity may be an indication that the increased frequency and intensity of storm events may be impacting the pond. Stormwater runoff generated from these high intensity events can transport nutrients, sediment and other pollutants into the pond. Try to identify any areas of erosion in the watershed and implement stormwater best management practices to capture and infiltrate the stormwater before it reaches the pond. DES' "NH Homeowner's Guide to Stormwater Management" is a great resource. Contact the VLAP Coordinator to obtain a copy.



NH Water Quality Standards: Numeric criteria for specific parameters. Results exceeding criteria are considered a water quality violation.
Chloride: > 230 mg/L (chronic)
E. coli: > 88 cts/100 mL – public beach
E. coli: > 406 cts/100 mL – surface waters
Turbidity: > 10 NTU above natural level
pH: between 6.5-8.0 (unless naturally occurring)

Station Name	Table 1. 2014 Average Water Quality Data for COLD POND								
	Alk. mg/l	Chlor-a ug/l	Cond. uS/cm	E. Coli #/100ml	Total P ug/l	Trans. m		Turb. ntu	pH
						NVS	VS		
Epilimnion	2.5	2.10	15.0		7	4.75	5.75	0.82	6.61
Hypolimnion			15.0		10			1.02	5.99
Beach				2					
Dam Outlet			17.0		8			0.85	6.4
Main Inlet			16.0		10			0.83	6.21

NH Median Values: Median values for specific parameters generated from historic lake monitoring data.
Alkalinity: 4.9 mg/L
Chlorophyll-a: 4.58 mg/m^3
Conductivity: 40.0 uS/cm
Chloride: 4 mg/L
Total Phosphorus: 12 ug/L
Transparency: 3.2 m
pH: 6.6

Historical Water Quality Trend Analysis

Parameter	Trend	Explanation	Parameter	Trend	Explanation
Conductivity	Improving	Data significantly decreasing.	Chlorophyll-a	Stable	Trend not significant; data highly variable.
pH (epilimnion)	Stable	Trend not significant; data highly variable.	Transparency	Stable	Trend not significant; data show low variability.
			Phosphorus (epilimnion)	Stable	Trend not significant; data moderately variable.